



SEQUENCE LISTING

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<120> NOVEL HEPATITIS C VIRUS PEPTIDES AND USES THEREOF

<130> RII-003CPUS

<140> US 09/719277

<141> 2000-04-13

<150> US 60/088670

<151> 1998-06-09

<150> US 60/089138

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<151> 1999-06-09

<160> 17

<170> PatentIn Ver. 2.0

<210> 1

<211> 595

<212> DNA

<213> Hepatitis C virus

<400> 1

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ctagattggg tgtgcgcgcg acgaggaaga cttccgagcg gtcgcaacct cgaggtagac 180
gtcagcctat cccaaggca cgtcggcccg agggcaggac ctgggctcag cccgggtacc 240
cttgccccc ctatggcaat gaggggttgcg ggtgggcggg atggctcctg tctccccgtg 300
gctctcggcc tagctggggc cccacagacc cccggcgtag gtcgcgcaat ttgggtaagg 360
tcacgatac ccttacgtgc ggcttcgcgc accatcatggg gtacataccg ctgcgcggcg 420
cccctcttgg aggcgctgcc agggccctgg cgcattggcg ccgggttctg gaagacggcg 480
tgaactatgc aacagggaac cttcctgggt gctctttctc tatcttcctt ctggccctgc 540
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<210> 2

<211> 196

<212> PRT

<213> Hepatitis C virus

<400> 2

Ala Arg Ile Leu Asn Leu Lys Glu Lys Pro Asn Val Thr Pro Thr Val
1 5 10 15

Ala His Arg Thr Ser Ser Ser Arg Val Ala Val Arg Ser Leu Val Glu
20 25 30

Phe Thr Cys Cys Arg Ala Gly Ala Leu Asp Trp Val Cys Ala Arg Arg
35 40 45

Gly Arg Leu Pro Ser Gly Arg Asn Leu Glu Val Asp Val Ser Leu Ser
50 55 60

C!
cont'd.

Pro Arg His Val Gly Pro Arg Ala Gly Pro Gly Leu Ser Pro Gly Thr
 65 70 75 80
 Leu Gly Pro Ser Met Ala Met Arg Val Ala Gly Gly Arg Asp Gly Ser
 85 90 95
 Cys Leu Pro Val Ala Leu Gly Leu Ala Gly Ala Pro Gln Thr Pro Gly
 100 105 110
 Val Gly Arg Ala Ile Trp Val Arg Ser Ser Ile Pro Leu Arg Ala Ala
 115 120 125
 Ser Pro Thr Ser Trp Gly Thr Tyr Arg Ser Ser Ala Pro Leu Leu Glu
 130 135 140
 Ala Ala Pro Gly Pro Trp Arg Met Ala Ser Gly Phe Trp Lys Thr Ala
 145 150 155 160
 Thr Met Gln Gln Gly Thr Phe Leu Val Ala Leu Ser Leu Ser Ser Phe
 165 170 175
 Trp Pro Cys Ser Leu Ala Leu Cys Pro Leu Gln Pro Thr Lys Cys Ala
 180 185 190
 Ile Pro Arg Gly
 195

<210> 3
 <211> 13
 <212> PRT
 <213> Hepatitis C virus

<220>
 <221> Variant
 <222> 8
 <223> Xaa = Asn or Lys

<220>
 <221> Variant
 <222> 9
 <223> Xaa = Val or Glu

<220>
 <221> Variant
 <222> 13
 <223> Xaa = Ala or Val

<400> 3
 Leu Asn Leu Lys Glu Lys Pro Xaa Xaa Thr Pro Thr Xaa
 1 5 10

<210> 4
 <211> 13
 <212> PRT
 <213> Hepatitis C virus

<220>
 <221> Variant

Arg Ala Pro Ile
20

<210> 9
 <211> 195
 <212> PRT
 <213> Hepatitis C virus

<400> 9
 Ala Gln Ile Leu Asn Leu Lys Glu Lys Pro Asn Val Thr Pro Thr Ala
 1 5 10 15
 Ala His Arg Thr Leu Ser Ser Arg Val Ala Val Arg Ser Leu Ala Glu
 20 25 30
 Phe Thr Cys Cys Arg Ala Gly Ala Pro Asp Trp Val Cys Ala Arg Leu
 35 40 45
 Gly Arg Leu Pro Ser Gly Arg Ser Leu Val Glu Gly Ala Ser Leu Ser
 50 55 60
 Pro Arg Ile Ala Gly Pro Arg Ala Gly Pro Gly Leu Ser Pro Gly Thr
 65 70 75 80
 Leu Gly Pro Ser Met Ala Met Arg Val Ala Gly Gly Gln Asp Gly Ser
 85 90 95
 Cys Pro Pro Ala Leu Gly Leu Leu Gly Ala Pro Met Thr Pro Gly
 100 105 110
 Gly Gly Pro Ala Ile Trp Val Arg Ser Ser Ile Pro Leu Arg Ala Ala
 115 120 125
 Ser Pro Thr Ser Trp Gly Thr Ser Arg Ser Ser Ala Pro Leu Gly Ala
 130 135 140
 Ser Pro Glu Leu Trp Arg Met Ala Ser Gly Ser Trp Arg Thr Gly Ile
 145 150 155 160
 Thr Gln Gln Gly Ile Phe Pro Val Ala Leu Phe Leu Ser Ser Phe Trp
 165 170 175
 Leu Phe Cys Pro Ala Leu Ser Gln Leu Arg Pro Ser Lys Cys Ala Thr
 180 185 190
 Leu Val Gly
 195

<210> 10
 <211> 196
 <212> PRT
 <213> Hepatitis C virus

<400> 10
 Ala Arg Ile Leu Asn Leu Lys Glu Lys Pro Asn Val Thr Pro Thr Val
 1 5 10 15
 Ala His Arg Thr Ser Ser Ser Arg Val Ala Val Arg Ser Leu Val Glu
 20 25 30
 Phe Thr Cys Cys Arg Ala Gly Ala Leu Asp Trp Val Cys Ala Arg Arg
 35 40 45
 Gly Arg Leu Pro Ser Gly Arg Asn Leu Glu Val Asp Val Ser Leu Ser
 50 55 60
 Pro Arg His Val Gly Pro Arg Ala Gly Pro Gly Leu Ser Pro Gly Thr
 65 70 75 80
 Leu Gly Pro Ser Met Ala Met Arg Val Ala Gly Gly Arg Asp Gly Ser
 85 90 95
 Cys Leu Pro Val Ala Leu Gly Leu Ala Gly Ala Pro Gln Thr Pro Gly
 100 105 110
 Val Gly Arg Ala Ile Trp Val Arg Ser Ser Ile Pro Leu Arg Ala Ala
 115 120 125
 Ser Pro Thr Ser Trp Gly Thr Tyr Arg Ser Ser Ala Pro Leu Leu Glu
 130 135 140
 Ala Ala Pro Gly Pro Trp Arg Met Ala Ser Gly Phe Trp Lys Thr Ala
 145 150 155 160

Thr Met Gln Gln Gly Thr Phe Leu Val Ala Leu Ser Leu Ser Ser Phe
 165 170 175
 Trp Pro Cys Ser Leu Ala Leu Cys Pro Leu Gln Pro Thr Lys Cys Ala
 180 185 190
 Ile Pro Arg Gly
 195

<210> 11
 <211> 192
 <212> PRT
 <213> Hepatitis C virus

<400> 11
 Ala His Phe Leu Asn Leu Lys Glu Lys Pro Lys Glu Thr Pro Ser Val
 1 5 10 15
 Ala His Arg Thr Ser Ser Ser Arg Val Ala Asp Arg Ser Leu Val Glu
 20 25 30
 Tyr Thr Cys Cys Arg Ala Gly Ala His Asp Trp Val Cys Ala Arg Arg
 35 40 45
 Val Lys Leu Leu Asn Gly His Ser Leu Ala Asp Asp Ser Leu Ser
 50 55 60
 Pro Arg Arg Val Gly Ala Lys Ala Gly Pro Gly Leu Ser Pro Gly Thr
 65 70 75 80
 Leu Gly Pro Ser Met Val Thr Arg Ala Ala Gly Gln Gly Gly Gly Ser
 85 90 95
 Cys Pro His Ala Ala Pro Val His Pro Gly Ala Gln Met Thr Pro Gly
 100 105 110
 Gly Gly Pro Ala Ile Trp Val Lys Ser Ser Ile Pro Arg Ala Asp Ser
 115 120 125
 Pro Thr Ser Trp Gly Thr Ser Arg Gly Gly Ala Leu Leu Glu Ala Ser
 130 135 140
 Gln Glu Pro Ser Arg Met Ala Gly Pro Leu Lys Thr Gly Ile Ser Gln
 145 150 155 160
 Gln Gly Thr Cys Pro Val Ala Pro Phe Leu Ser Ser Phe Leu Leu Cys
 165 170 175
 Ser Leu Ala Phe Ile Gln Gln Pro Val Ser Gly Gly Ile Arg Leu Ala
 180 185 190

<210> 12
 <211> 197
 <212> PRT
 <213> Hepatitis C virus

<400> 12
 Ala Gln Ile Leu Asn Leu Lys Glu Lys Pro Lys Glu Thr Gln Thr Ala
 1 5 10 15
 Ala His Arg Thr Leu Ser Ser Arg Val Ala Val Arg Ser Leu Ala Glu
 20 25 30
 Phe Thr Cys Cys Arg Ala Gly Ala Pro Gly Trp Val Cys Ala Arg Gln
 35 40 45
 Gly Arg Leu Leu Ser Asp Pro Ser Arg Val Asp Asp Ala Ser Pro Ser
 50 55 60
 Arg Lys Ile Gly Ala Pro Pro Ala Ser Pro Gly Glu Ser Gln Asp Ile
 65 70 75 80
 Leu Gly Pro Cys Thr Glu Thr Arg Val Ala Ala Gly Arg Val Gly Ser
 85 90 95
 Cys Pro Pro Ala Gly Leu Val Leu Leu Gly Ala Pro Pro Thr Pro Gly
 100 105 110
 Ile Asp His Ala Ile Trp Ala Glu Ser Ser Ile Pro Leu Arg Val Val

	115						120					125							
Leu	Pro	Thr	Ser	Trp	Gly	Thr	Ser	Leu	Ser	Leu	Ala	Pro	Arg	Leu	Glu				
	130						135				140								
Ala	Ser	Pro	Glu	Leu	Trp	His	Thr	Val	Leu	Gly	Ser	Trp	Arg	Thr	Gly				
145					150					155					160				
Ile	Thr	Gln	Gln	Gly	Ile	Tyr	Pro	Val	Ala	Leu	Phe	Leu	Ser	Phe	Cys				
				165						170					175				
Leu	Leu	Phe	Cys	His	Ala	Ser	Gln	Cys	Gln	Cys	Leu	Gln	Trp	Lys	Ser				
			180					185						190					
Gly	Thr	Leu	Val	Leu															
				195															

<210> 13
 <211> 195
 <212> PRT
 <213> Hepatitis C virus

<400> 13

Ala	Arg	Ile	Leu	Asn	Leu	Lys	Glu	Lys	Pro	Asn	Val	Thr	Pro	Thr	Ala				
1				5					10						15				
Ala	His	Arg	Thr	Leu	Ser	Ser	Arg	Val	Ala	Ala	Arg	Ser	Leu	Ala	Glu				
			20					25					30						
Phe	Thr	Cys	Cys	Arg	Ala	Gly	Ala	Pro	Glu	Trp	Val	Cys	Ala	Arg	Arg				
		35				40						45							
Gly	Arg	Leu	Pro	Ser	Gly	Arg	Asn	Leu	Ala	Gly	Gly	Val	Ser	Leu	Phe				
	50					55					60								
Pro	Arg	Pro	Ala	Asp	Pro	Arg	Glu	Gly	Pro	Gly	Arg	Ser	Pro	Gly	Thr				
65				70				75							80				
Leu	Gly	Pro	Ser	Met	Ala	Thr	Arg	Ala	Val	Gly	Gly	Arg	Asp	Pro	Ser				
				85				90						95					
Cys	Pro	Pro	Ala	Ala	Leu	Gly	Leu	Val	Gly	Ala	Leu	Leu	Thr	Pro	Gly				
			100					105					110						
Gly	Gly	His	Ala	Ile	Trp	Val	Arg	Ser	Ser	Ile	Pro	Ser	Arg	Val	Ala				
		115					120					125							
Ser	Pro	Thr	Ser	Trp	Gly	Thr	Ser	Thr	Ser	Ser	Ala	Leu	Leu	Gly	Ala				
	130					135					140								
Leu	Pro	Glu	Leu	Trp	His	Met	Val	Leu	Glu	Ser	Trp	Lys	Thr	Ala	Ile				
145					150					155					160				
Thr	Gln	Gln	Gly	Thr	Ser	Pro	Val	Ala	Leu	Phe	Leu	Ser	Ser	Cys	Ser				
				165					170					175					
Leu	Phe	Tyr	Pro	Ala	Gln	Ser	Leu	Leu	Arg	Pro	Ser	Glu	Cys	Ala	Thr				
			180					185					190						
Leu	Arg	Gly																	
		195																	

<210> 14
 <211> 194
 <212> PRT
 <213> Hepatitis C virus

<400> 14

Ala	Gln	Ile	Leu	Asn	Leu	Lys	Glu	Lys	Pro	Lys	Glu	Thr	Pro	Thr	Val				
1				5					10						15				
Ala	His	Lys	Thr	Leu	Ser	Phe	Arg	Ala	Ala	Ala	Arg	Ser	Leu	Ala	Glu				
			20					25					30						
Tyr	Thr	Cys	Cys	Arg	Ala	Gly	Ala	Pro	Gly	Trp	Val	Cys	Ala	Arg	Gln				
		35				40						45							
Gly	Arg	Leu	Arg	Ser	Gly	Pro	Ser	His	Val	Glu	Gly	Ala	Ser	Pro	Ser				
	50					55					60								

Leu Arg Ile Gly Ala Pro Leu Ala Asn Pro Gly Glu Asn Gln Asp Thr
 65 70 75 80
 Pro Gly Pro Tyr Thr Gly Met Arg Asp Ser Ala Gly Gln Asp Arg Ser
 85 90 95
 Cys Pro Pro Glu Val Pro Val Pro Leu Gly Ala Pro Met Thr Pro Gly
 100 105 110
 Ile Gly Pro Ala Thr Trp Val Arg Ser Ser Ile Pro Arg Ala Ala Leu
 115 120 125
 Pro Thr Ser Trp Gly Thr Ser Leu Ser Ala Pro Arg Ser Ala Ala Ser
 130 135 140
 Pro Glu Leu Ser Arg Met Ala Glu Ser Trp Arg Thr Gly Leu Ile Leu
 145 150 155 160
 Gln Gln Gly Thr Tyr Pro Val Ala Pro Phe Leu Ser Ser Cys Trp Pro
 165 170 175
 Cys Cys Pro Ala Ser Pro Pro Arg Ser Pro Leu Pro Lys Arg Thr Ser
 180 185 190
 Val Pro

<210> 15
 <211> 194
 <212> PRT
 <213> Hepatitis C virus

<400> 15
 Ala Gln Ile Gln Asn Pro Lys Asp Lys Pro Lys Glu Thr Pro Thr Val
 1 5 10 15
 Ala His Arg Thr Ser Ser Ser Arg Ala Val Val Arg Ser Trp Val Glu
 20 25 30
 Tyr Thr Cys Cys Arg Ala Gly Ala Leu Asp Trp Val Cys Ala Arg Leu
 35 40 45
 Gly Arg Leu Pro Asn Gly Pro Ser Pro Glu Ala Gly Val Ser Pro Phe
 50 55 60
 Gln Arg Leu Ala Ala Arg Arg Ala Val Pro Gly Val Ser Leu Gly Thr
 65 70 75 80
 His Gly Pro Cys Met Gly Met Arg Ala Ala Gly Gly Gln Gly Gly Ser
 85 90 95
 Cys Pro Pro Ala Ala Leu Ala Gln Arg Gly Ala Gln Thr Thr Pro Gly
 100 105 110
 Val Gly Leu Ala Thr Trp Val Arg Ser Ser Ile Pro Leu Leu Ala Ala
 115 120 125
 Ser Pro Thr Trp Gly Thr Ser Pro Ser Ala Ala Pro Gly Ala Ser Gln
 130 135 140
 Gln Gln Leu Trp Arg Met Ala Ser Gly Leu Leu Arg Thr Gly Ile Met
 145 150 155 160
 Gln Gln Gly Ile Phe Pro Val Ala Pro Phe Leu Ser Ser Phe Trp His
 165 170 175
 Phe Phe Arg Ala Leu Tyr Gln Pro Arg Gln Ser Ile Met Pro Ile Arg
 180 185 190
 Ala Ala

<210> 16
 <211> 195
 <212> PRT
 <213> Hepatitis C virus

<400> 16
 Ala Arg Ile Leu Asn Leu Lys Glu Lys Pro Asn Val Thr Pro Thr Ala

1	5	10	15
Ala Gln Trp Thr	Leu Ser Ser Arg	Val Val Ala Arg	Ser Leu Ala Glu
	20	25	30
Phe Thr Cys Cys	Arg Ala Gly Ala	Pro Asp Trp Val	Cys Ala Arg Leu
	35	40	45
Gly Arg Leu Arg	Ser Gly Arg Asn	Leu Val Glu Asp	Ala Asn Leu Ser
	50	55	60
Pro Arg Arg Val	Asp Pro Arg Glu	Gly Pro Gly His	Asn Gln Asp Ile
	65	70	75
His Gly Leu Phe	Thr Val Met Arg	Val Val Gly Gly	Gln Asp Gly Ser
	85	90	95
Cys Pro Pro Val	Ala Leu Asp Arg	Leu Gly Ala Gln	Met Ile Pro Ala
	100	105	110
Gly Gly Pro Ala	Ile Trp Val Arg	Ser Ser Ile Pro	Pro Ala Ala Ser
	115	120	125
Pro Thr Ser Trp	Asp Thr Ser Arg	Ser Ala Pro Pro	Trp Val Ala Ser
	130	135	140
Pro Gly Pro Trp	His Met Val Ser	Gly Leu Trp Arg	Thr Gly Ser Ile
	145	150	155
Met Gln Gln Gly	Ile Ser Pro Val	Ala Pro Phe Leu	Ser Ser Ser Trp
	165	170	175
His Phe Phe Arg	Ala Leu Ser Pro	Leu Arg Pro Leu	Thr Ile Ala Met
	180	185	190
Ser Gln Ala			
	195		

<210> 17
 <211> 192
 <212> PRT
 <213> Hepatitis C virus

<400> 17

Ala Gln Ile Leu	Asn Leu Lys Glu	Lys Pro Asn Val	Thr Pro Thr Ala
1	5	10	15
Ala His Arg Thr	Ser Ser Ser Arg	Ala Val Val Arg	Ser Leu Val Glu
	20	25	30
Phe Thr Cys Cys	Arg Ala Gly Ala	Pro Gly Trp Val	Cys Ala Arg Leu
	35	40	45
Gly Arg Leu Pro	Ser Gly Arg Asn	Leu Val Glu Gly	Asp Asn Leu Ser
	50	55	60
Pro Arg Phe Ala	Gly Pro Arg Ala	Gly Pro Gly Leu	Ser Pro Gly Thr
	65	70	75
Leu Gly Pro Ser	Met Ala Met Arg	Val Trp Gly Gly	Gln Asp Gly Ser
	85	90	95
Cys His Pro Gly	Ala Leu Gly Leu	Val Gly Ala Pro	Arg Thr Pro Gly
	100	105	110
Val Gly Arg Val	Ile Trp Val Arg	Ser Ser Ile Pro	Leu His Ala Gly
	115	120	125
Ser Pro Thr Ser	Trp Gly Thr Phe	Pro Ser Ala Ala	Pro Gly Ala Leu
	130	135	140
Pro Gly Pro Trp	Arg Met Val Ser	Gly Phe Trp Arg	Ser Ala Thr Thr
	145	150	155
Gln Gln Gly Phe	Pro Val Ala Leu	Ser Leu Ser Ser	Ser Pro Cys Cys
	165	170	175
Pro Val Pro Phe	Gln Leu Pro Leu	Met Lys Cys Ala	Thr Cys Pro Gly
	180	185	190